Agenda Item No. 8c.
Council Meeting of May 27, 2015

REQUEST FOR COUNCIL ACTION

Subject:
Approval of Design Alternative for the Development of the Big Bend Habitat Area

Discussion:
The City of West Jordan selected River Restoration.org in December 2014 for the 30% Design of the Big Bend Habitat project area. Eric McCulley of River Restoration discussed 3 design alternatives in a presentation at the May 13, 2014 meeting for consideration by the City Council. These alternatives can be considered on a standalone basis or be combined with another alternative. Parts of each alternative can be moved into another alternative and different elements can be phased in as funds allow. Each part can be interchanged or modified with desirable pieces and parts being included in any alternatives.

The City Council needs to make a decision as to the level of restoration it wants to pursue at this site, if any at all, for the completion of this design.

Fiscal Impact:
All funds for completion of this project are available through funds previously awarded from the Utah Departments of Water Quality & Wildlife Resources and the U.S. Fish & Wildlife Foundation ($225,000)

Recommendation:
Staff recommends approving the following motion:

Motion
"I move to approve the 30% design option for the combination of Alternative 1 & 2.

Roll Call

Prepared by:
Charles Tarver
CDBG/Grants Manager

Approved by:
Bryce Haderlie
Interim City Manager

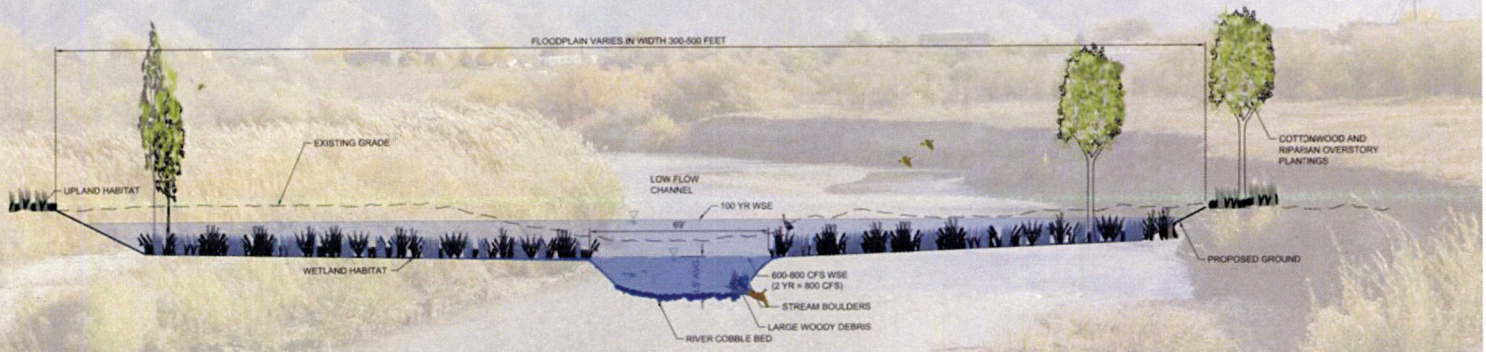
Narrative:

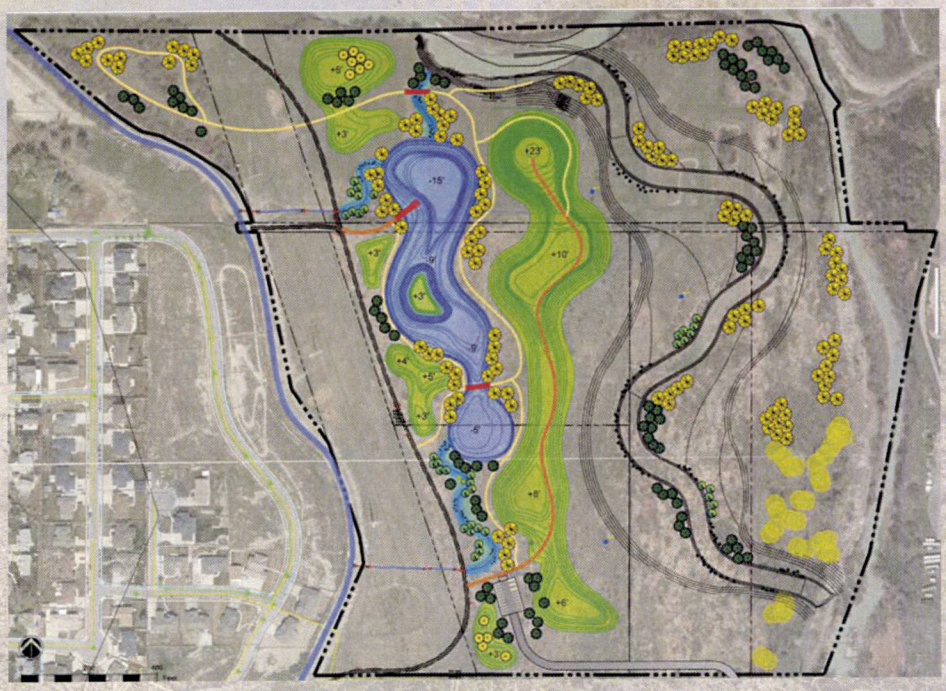
A copy of the May 2014 Preliminary Design Alternatives Report summary has been attached for your review.

BIG BEND HABITAT RESTORATION PROJECT

Preliminary Design Alternatives Report

SUMMARY May 2015





Prepared for:

WEST JORDAN UTAH

By:

RIVER RESTORATION.ORG

BIO-WEST

peters newell architects & planners

ALLRED RESTORATION

INTERMOUNTAIN AQUATICS INC.

Introduction

The West Jordan Big Bend Habitat Restoration Project is an ambitious river and riparian restoration project that has been in the planning stages for more than a decade. In order to take the project from planning into implementation, the project team has gathered the available information and data on the project area, developed a set of three cost alternatives, and received input from West Jordan City staff and the core Stakeholder team. The alternatives represent basically three different cost levels ranging from a low of approximately $2.9M to a high of over $8.5M. The purpose of this document is to provide West Jordan City Council with information on the project. A detailed Preliminary Alternatives Report is available upon request.

Prior to beginning the alternatives development, the Project Team compiled available information and data for the project area. This included a review of information on the physical, water, and biological resources of the Big Bend. The physical resources included information such as historical air photos, remotely sensed data (LiDAR), existing utilities on the site, and data gathered in a site reconnaissance survey completed in December 2014. A base map of the site is included as an attachment. The water resources included available data on both surface and ground water, research into available water rights and a summary of the available information on the river morphology through the project reach. The biological resources include information on wetlands, birds, and vegetation. The team reviewed the applicable regulatory requirements for implementing a project of this scale and scope. The project also performed hydrologic, hydraulic and sediment transport analysis of the Jordan River through the project site, including 1 dimensional HEC-RAS models. All of this background research and analysis defined the site constraints, helping to focus the project team's effort towards developing three feasible alternatives.

Project Elements

Each of the projects main components are discussed in detail below. While the project and the design efforts can be divided into its various geographical areas and intended purposes, it is critical for the project elements to be integrated into the complete site. The project team has made a concerted effort to coordinate on all aspects of the project to create a design that flows from one area of the site to the others.

> **Urban Fishery** – a 3-4 acres pond providing suitable aquatic habitats for resident and stocked fish species, recreational amenities including Americans with Disabilities Act (ADA) accessible primary trails segments connecting the parking area with the pond via the Jordan River Parkway Trail, a secondary trail system circumnavigating the pond with connections to the river, accessible fish cleaning station, accessible restrooms, accessible fishing pier, elevated boardwalks in riparian-wetland areas, benches, and trash receptacles. Educational and interpretive signage will be incorporated into the final trail system layout.

Icon Structure - proposed icon structure is the centerpiece of the recreational aspects of the project. It is intended to combine the natural elements of the site with the industrial history. The structure focuses visitors to two main viewpoints: looking north down the Jordan River and east up Little Cottonwood Canyon. This long distance view provides a stunning counterpart to the nearby short-range view of the river and the trees. Conceptual layouts for the icon structure are included as an attachment.

Paths and Grading - Trails will be confined to the western third of the project site to minimize disturbance effects to wildlife habitat restoration areas associated with the eastern two-thirds of the project site. Proposed trails include both primary and secondary trail systems. The subtle grading and mounding shown in each alternative are sculpted to appear natural and to enhance aesthetics of the site. The grading also provides a location for material excavated from the ponds and meander channel, reducing the amount of material that needs to be hauled offsite. For the low and mid-range alternatives, this quantity was balanced to eliminate material haul off completely.

Habitat Restoration -Habitat restoration efforts will employ an ecosystem approach that considers soils, plant species, microclimatic conditions, plant and animal interactions, and other ecosystem variables. The project team has developed a native plant palette for use in habitat restoration efforts throughout the project site.

Meander Channel -The project plan includes rerouting a portion of the channel through the project site, adding sinuosity, pools, riffle, large woody debris and other BMP's to increase channel habitat and diversity. Two options were considered for the meander channel, 1) a larger channel with a lower and wide floodplain and 2) a smaller channel with only a minimal floodplain. The high range channel will result in a more sustainable, lower maintenance system. These advantages are offset by the increased cost associated with hauling excavated material offsite. Typical sections are included as an attachment.

Confluence Area - The existing bank of the Jordan River on the north side of the project is near vertical and there is evidence of active erosion and undercutting. Stabilizing the bank and halting the current migration trend creates two benefits: 1) most of the material in this particular eroding bank is finer silts and clays that can cause turbidity issues in the Jordan River and 2) project related grading and infrastructure investments will require assurances that the migrating river will not damage them. Typical sections are included as an attachment.

Access Road and Parking –Two options were considered for providing public access to the site. Option 1 is a new access road off of 9000 S and a parking lot, attached as figure D5. A less expensive option would be to construct a small parking lot off of 8600 S in the neighborhood just west of the site. Visitors would access the site via the new pedestrian bridge over the North Jordan Canal.

Alternatives Development

Three alternatives were developed for review and comment by the Stakeholders and the West Jordan City Council. These are based on three desired cost ranges provided by the City of West Jordan during project development. Each has a version of the project's various components. The lower cost alternatives typically have smaller versions to save on construction costs, most notably costs associated with earthwork. The three alternatives are:

- **High-Range Option,** shown in figure D1, has a total cost of $8.5 Million. This option includes: meander channel with lowered and full width floodplain, upland and wetland habitat improvements and revegetation, tiered confluence area, access road off 9000 S and parking lot, full sized urban fishery facility and path network, and icon site with two cantilevered platforms.
- **Mid-Range Option**, shown in Figure D2, has a total cost of $4.9 Million. This option includes: small channel with minimal floodplain, upland and wetland habitat improvements and revegetation, tiered confluence area, parking lot off 8600 S, full sized urban fishery facility and path network, and icon site with one cantilevered platforms.
- **Low-Range Option**, shown in Figure D3, had a total cost of $2.9 Million. The option includes: small side channel feed by canal diversion, upland and wetland habitat improvements and revegetation, tiered confluence area, parking lot off 8600 S, and smaller sized urban fishery facility and path network. No icon site is included with this option.

Alternatives Evaluation

Each of the three alternatives was evaluated using a set of criteria developed by the project team. Table 4-1 summarizes the values used for the scoring, if applicable and Table 4-2 summarizes the scores.

The evaluation criteria included:

- Amount of habitat area created (total of 20 points) – Include total area created, "isolated" habitat area east of the meander channel top of bank, total wetland habitat area, and total riverine habitat area. Highest total acreage for each gets 5 points with the second total getting the ratio of the highest acreage divided by the alternative's acreage x 5.
- Quality of Experience (total of 10 points) - rated on a scale of 1 to 10 with 10 being the highest quality experience for site visitors. This is a subjective score based on the alternatives amenities and aesthetics.
- Long Term and Short Term Maintenance (total of 10 points) – rated on a scale of 1 to 1 for each with 10 being the least amount of overall maintenance.
- Construction Costs (total of 15 points) – least amount of construction costs receives 15 points with the second total getting the ratio of the lowest cost divided by the alternative's cost x 15.

Table 4-1 - Diversion Point Alternatives Comparison - Values

Component	Alt 1 – High Range	Alt 2 Mid-Range	Alt 3 – Low Range
Total Habitat Area (Acres)	42.0	42.0	42.0
"Isolated" Habitat Area (Acres)	16.6	19.6	0.0
Total Wetland Habitat Area (Acres)	11.1	4.4	1.1
Total Riverine Habitat Area (Acres)	4.2	2.0	0.0
Quality of Experience	n/a	n/a	n/a
Long/Short Term Maintenance	n/a	n/a	n/a
Construction Costs	$8,530,490	$4,971,264	$2,942,791

Table 4-2 - Diversion Point Alternatives Comparison -Scores

Component	Alt 1 – High Range	Alt 2 Mid-Range	Alt 3 – Low Range
Total Habitat Area (5 max)	5.0	5.0	5.0
"Isolated" Habitat Area (5 max)	4.3	5.0	0.0
Total Wetland Habitat Area (5 max)	5.0	2.0	0.5
Total Riverine Habitat Area (5 max)	5.0	2.3	0.0
Quality of Experience (10 max)	10.0	8.0	4.0
Long/Short Term Maintenance (10 max)	10.0	7.0	5.0
Construction Costs (15 max)*	5.2	8.9	15.0
Total Pts (55 points max)	**44.5**	**38.2**	**29.5**

A cost opinion was developed for each of the alternatives. Table 4-3 summarizes the resulting costs. A detailed cost opinion for each alternative is included as an attachment.

Table 4-3 – Alternatives Project Cost

Alternative	Approximate Costs
Alt 1 – High-Range Option	$8.5 Million
Alt 2 – Mid-Range Option	$4.9 Million
Alt 1 – Low-Range Option	$2.9 Million

Project Phasing

The project activities will be managed in phases and will be somewhat contingent upon the availability of funding. The proposed general phases of the project are:

- Phase 1 – Initial site preparation and noxious weed control
- Phase 2 – Implementation of habitat improvements
- Phase 3 – Construction of access road/parking, urban fishery, icon site, and confluence area
- Phase 4 – Construction of diversion point, meander channel and floodplain
- Phase 5 – Long-term maintenance

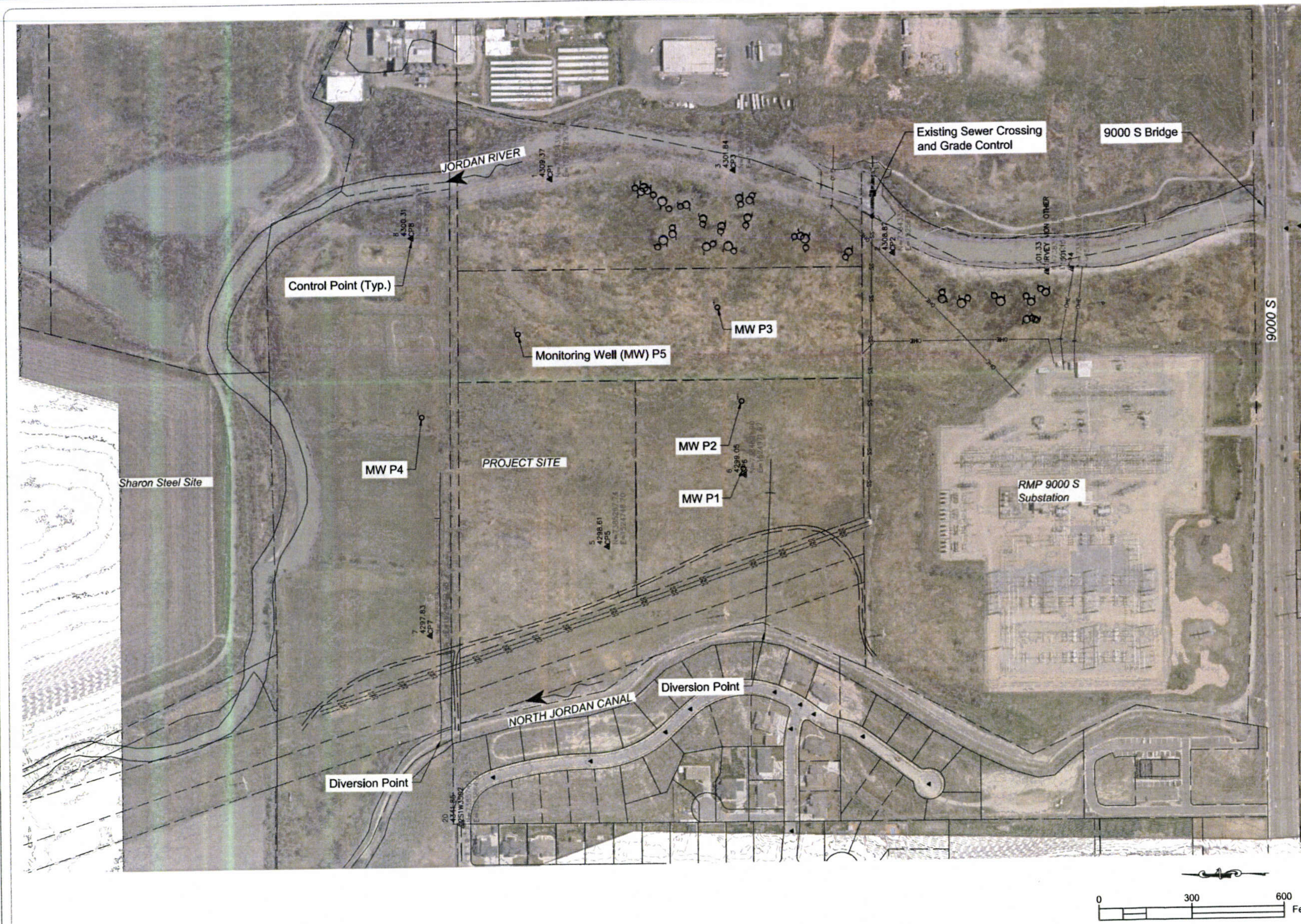
Conclusion and Next Steps

The project team provided a range of alternatives that can be implemented in a phased manner. The alternatives are all feasible to implement, but cost and funding will be a major factor in how the project is implemented. Using an open and transparent evaluation of project alternatives, the project team will work with the City of West Jordan, URMCC, USFWS, and other stakeholders and outside interests to make this a successful project.

The next steps in the planning of this project are to get input from the stakeholder group and West Jordan City Council on the details of the alternatives, identify funding sources, and developing community support for the project. The importance of funding for implementation and follow up for this project cannot be overstated. Without funding sources there will be no project. All of the Stakeholders and outside participants need to help develop a funding strategy, and many people will be asked to assist in development of grant funding proposals, private contributions, and in-kind donation of services. Additionally, developing a supportive community that will help steward this project into the future will be a key to success. Without community support the project would be doomed to failure. With a high level of community support the project will be successful and will provide for the needs of both humans and wildlife long into the future.

Attachments

- Figure A1 – Project Basemap
- Figures E13, E5 and E14 – Icon Structure Exhibits
- Sample Cross Section for Meander Channel Options
- Figure D5 – Access Road and Parking Concept
- Figure D1 – High Range Alternative
- Figure D2 – Mid Range Alternative
- Figure D3 – Low Range Alternative
- High, Mid and Low Range Conceptual Level Cost Estimates



ALTERNATIVES ANALYSIS - NOT FOR CONSTRUCTION

PROFESSIONAL ENGINEER STAMP

PRELIMINARY

Big Bend Habitat Restoration Project

Project Base Map with LiDAR Contours

No.	REVISION/UPDATE	Date
1	DESIGN UPDATES	

CLIENT NAME AND ADDRESS

WEST JORDAN
City of West Jordan
Capital Projects Group
8000 S. Redwood Rd
West Jordan, UT 84088
801.569.5043

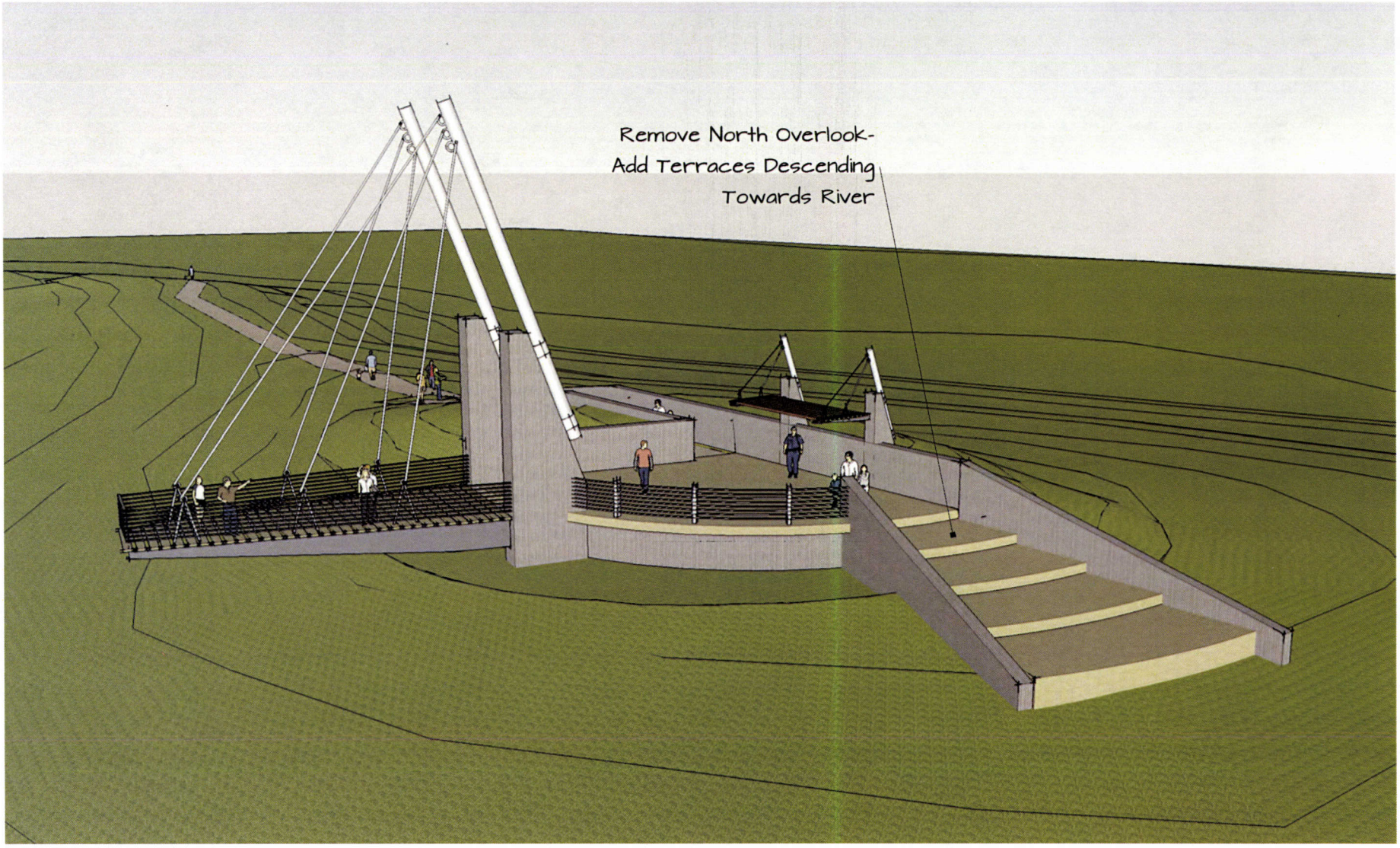
DESIGN FIRM NAME AND ADDRESS

RIVER
peters + newell
BIO-WEST
ALLIED RESTORATION

PROJECT NAME AND ADDRESS

Jordan River "Big Bend" Habitat Restoration Project
800 W Block, 9000 S
West Jordan, UT 84088

Project: BIG BEND - WJ
Date: MARCH 27, 2015
Scale: 1" = 150' (full size)
Sheet: A1



ALTERNATE 'A'

REMOVE NORTH OVERLOOK

not to scale

peters + newell architects & planners

Big Bend Habitat Restoration - West Jordan, UT

RIVER RESTORATION.ORG

WEST JORDAN

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E13